

REMARKS

Claims 1-32 remain in the application. Independent Claims 1 and 17 are amended to change the word “destroyed” to --changed--, as are paragraphs 0015 and 0085, to be consistent with the use of “changed” in connection with the change in band gap. The change in the band gap energy is due to the rotation of the rotors, discussed in, e.g., paragraphs 0067-0072. As the rotors rotate from a relatively conjugated state to a relatively non-conjugated state, the conjugation is changed, which thereby changes the band gap energy.

Claims 17, 24, 27, and 28 are rejected under 35 USC 102(b) as being anticipated by Theiste et al (U.S. Patent 6,249,369).

Theiste et al disclose coupled electrochromic compounds with photostable dication oxidation states. Coupling of anodic electrochromic compounds by a covalent bond or a bridge link which provides for electronic communication between the coupled electrochromic compounds results in coupled electrochromic compounds which purportedly exhibit greater stability as well as electrochromic activity that differs from the monomeric electrochromic compounds.

Applicants’ Claim 17, as amended, recites an electronic ink including an electric field activated molecular system configured within an electric field generated by a pair of electrodes. The molecular system has at least one rotor portion connected to at least one stator portion, wherein the at least one rotor portion rotates with respect to the at least one stator portion between at least two different states upon application of the electric field, thereby inducing a color change in the molecular system, wherein in a first state, there is extended conjugation throughout the molecular system, resulting in a first color state, and wherein in a second state, said extended conjugation is changed, resulting in either a transparent state or a second color state.

Claims 24, 27, and 28 each depend from Claim 17 and are directed to the state of the molecular system.

The Examiner argues that Theiste et al disclose all of the elements of Claim 17, including molecular systems having at least one rotor portion connected to at least one stator portion, wherein the at least one rotor portion rotates with respect to the at least one stator portion between at least two different states upon application of the electric field, thereby inducing a color change in the molecular system, wherein in a first state, there is extended conjugation throughout the molecular system and wherein in a second state, the extended conjugation is changed, re-

sulting in either a transparent state or a second color state. The Examiner cites Cols. 1 and 2 of the reference and paragraphs 24-27.

Applicants can find no reference whatsoever to a molecular system in Thieste et al. As to Cols. 1-2, the material disclosed therein is directed to electrochromic devices, comprising an electrochromic medium disposed between two electrodes. The electrochromic medium changes color upon electrochemical oxidation or reduction (Col. 1, line 57 to Col. 2, line 7).

In direct contrast, Applicants specifically teach that their molecular systems change color as a result of an electric field induced intramolecular change ***rather than a diffusion or oxidation/reduction reaction*** (specification, paragraph 0072). Thus, molecular systems that exhibit switching via an oxidation/reduction mechanism are not the same as molecular systems that exhibit switching via an E-field induced intramolecular change.

The Examiner also refers to paragraphs 24-27 in Thieste et al. However, Applicants can find no such numbered paragraphs, and respectfully request that the Examiner provide a citation to the column and line number of such disclosure of Applicants' rotor/stator configuration. In the absence of such citation, Applicants expect the Examiner to withdraw the rejection.

Finally, in a subsequent rejection, on page 3 of the Office Action, the Examiner clearly admits that, in fact, Thieste et al do not disclose Applicants' rotor/stator configuration:

“Theiste et al. does not disclose a rotor and a strator [*sic: stator*] or one rotor connected between two stators, infact Theiste et al. does not disclose the specific configuration of the rotor and stator.”

By the Examiner's own admission, if Theiste et al do not disclose a rotor and a stator (Claim 17 recites at least one rotor connected to at least one stator portion), then not all of the elements of Claim 17 have been disclosed in a single reference, the requirement for a rejection based on anticipation.

Applicants submit that the rejection under 35 USC 102(b) is inappropriate, and must fall. Further, because Theiste et al disclose electrochromic materials that switch via an oxidation/reduction mechanism, and not molecules that switch via an E-field induced intramolecular change, then this reference cannot be said to even remotely suggest Applicants' claimed invention.

Reconsideration of the rejection of Claims 17, 24, 27, and 28, as amended, under 35 USC 102(b) as being anticipated by Theiste et al is respectfully requested.

Claims 29 and 31 are rejected under 35 USC 103(a) as being unpatentable over Theiste et al, *supra*, in view of Komiya (U.S. Patent 4,481,588).

The Theiste et al reference is discussed above. Komiya discloses a method and an apparatus for adjusting the installation position of switch members in a numerical control system. The Examiner cites this reference for its teaching of a connection of one rotor (Fig. 3, element 7c) between two stators (Fig. 3, elements 7a, 7b).

Applicants' Claims 29 and 31 each depend from Claim 17, and specify the connection of one rotor to one stator (Claim 29) and one rotor to two stators (Claim 31).

The Examiner admits that Theiste et al do not disclose a rotor and a stator or one rotor connected between two stators, but argues that Komiya discloses one rotor connected between two stators.

First, the arguments made above with regard to Claim 17 and Theiste et al obtain here as well.

Second, Applicants very clearly state in the specification that:

In employing the terms "rotor" and "stator", it will be appreciated that what is meant is one part of the molecule rotating with respect to another part of the molecule; thus, the motion of one segment in the molecule with respect to another is relative." (specification, paragraph 0069.)

Applicants used the term "rotor" to refer to a part of a molecule that is capable of rotating with respect to other parts of the *molecule*. Applicants used the term "stator" to refer to stationary parts of the *molecule*. Such a configuration has absolutely nothing at all to do with an electrical device comprising one or two stators associated with a rotor which rotates in accordance with the rotation of a DC motor. The Examiner is attempting to apply the teachings of a well-known electrical device to a molecule. The Examiner fails to state how the teachings of a well-known electrical device (motors, dynamos, turbines, etc., which are related to the electrical device of Komiya and comprise a stator, or a stationary part, about which a rotor turns) is analogous art to molecules having a stationary part and a rotating part.

The Federal Circuit has clarified how to determine whether a reference is reasonably pertinent to the particular problem with which the inventor was involved. The Federal Circuit has stated

“[a] reference is reasonably pertinent if ... it is one which, because of the matter with which it deals, logically would have commended itself to the inventor’s attention in considering his problem. ... If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem. ... [I]f it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.” *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058-1060-61 (Fed. Cir. 1992).

Komiya has absolutely nothing at all to do with molecular switching, with electronic inks, or with color change materials; it is clearly a non-analogous reference. The Examiner is simply extracting words from Komiya and applying them to Theiste et al. For example, even if one assumes, which Applicants do not, that somehow Komiya suggests constructing a molecule with a rotor and a stator, then Applicants would ask: where are the teachings in either of the two references that would suggest to one skilled in the art of constructing molecules how to design molecules that have rotating parts and stationary parts, in which the conjugation of the molecule is changed by the rotation?

Further, since the invention of Theiste et al is directed to oxidation/reduction electrochromic materials, and not to switchable molecular systems based on E-field induced intramolecular changes, the combination, whatever it is, utterly fails to disclose or even remotely suggest Applicants’ claims.

Reconsideration of the rejection of Claims 29 and 31 under 35 USC 103(a) as being unpatentable over Theiste et al in view of Komiya is respectfully requested.

Claim 30 is rejected under 35 USC 103(a) as being unpatentable over Theiste et al, *supra*, in view of Reichen et al (U.S. Patent 4,166,200).

The Theiste et al reference is discussed above. Reichen et al disclose a compact rotary switch construction for printed circuitry applications. The Examiner cites this reference for its teaching of two rotors (Fig. 11, elements 124, 126) connected to one stator (Fig. 11, element 128).

Applicants’ Claim 30 depends from Claim 17 and recites two rotors, each connected to one stator.

The comments made above regarding Theiste et al obtain here as well. Further, since the device of Reichen et al is an electrical device, the same arguments made above with regard to

Komiya obtain here as well. The Examiner simply cannot take elements from an electrical device disclosed in non-analogous art and apply them to single molecules. There is no suggestion in either of the references for combining them.

Reconsideration of the rejection of Claim 30 under 35 USC 103(a) as being unpatentable over Theiste et al in view of Reichen et al is respectfully requested.

Claim 32 is rejected under 35 USC 103(a) as being unpatentable over Theiste et al, *supra*, in view of Hoffman (U.S. Patent 4,827,604).

The Theiste et al reference is discussed above. Hoffman disclose a method of making an encoding substrate. The Examiner cites this reference for its teaching of an alternating rotor and a stator (Fig. 1, element 50, 100).

Applicants' Claim 30 depends from Claim 17 and recites two rotors, each connected to one stator.

The comments made above regarding Theiste et al obtain here as well. Further, since the device of Hoffman is an electrical device, the same arguments made above with regard to Komiya obtain here as well. The Examiner simply cannot take elements from an electrical device disclosed in non-analogous art and apply them to single molecules. There is no suggestion in either of the references for combining them.

Reconsideration of the rejection of Claim 32 under 35 USC 103(a) as being unpatentable over Theiste et al in view of Hoffman is respectfully requested.

Applicants acknowledge that Claims 18-23, 25, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants submit that, in light of their arguments made above, Claims 17, 24, and 27-32 are also allowable.

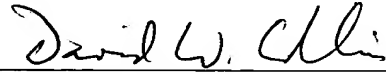
Applicants appreciate that Claims 1-16 are allowed. Applicants submit that the same reasons given for allowing Claim 1, which is directed to a switchable medium for a visual display, are applicable to Claim 17, which is directed to an electronic ink having the molecular system recited in Claim 1.

The foregoing amendments and arguments are considered to place the application in condition for allowance. The Examiner is respectfully requested to take such action. If the Examiner has any questions, he is invited to contact the undersigned at the below-listed telephone number. HOWEVER, ALL WRITTEN COMMUNICATIONS SHOULD CONTINUE TO BE

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Respectfully submitted,

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